

Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1. **(Currently amended)** A method for analyzing specified properties of a set of samples, the method comprising:
 - a. providing a platen having two substantially parallel planar surfaces, an inner layer of hydrophilic material, two outer layers of hydrophobic material coupled to opposite sides of the inner layer, and a two-dimensional array of a plurality of addressable through-holes, the through-holes being disposed substantially perpendicularly to the planar surfaces and the array characterized by an areal density of at least 1.6 through-holes per square millimeter;
 - b. loading a first sample into a first set of through-holes of the two-dimensional array, the first sample being a liquid;
 - c. retaining the first sample in the first set of through-holes by surface tension;
 - d. adding a second sample into a specified subset of through-holes, the specified subset of through-holes having at least one adjacent through-hole containing a sample other than the second sample, the specified subset of through-holes further coinciding with one of the first set of at least one of the through-holes thereby permitting a reaction between the first sample and the second sample, wherein the layers of hydrophobic material prevent capillary outmigration of the samples; and
 - e. characterizing the reaction in the specified subset of through-holes in terms of the specified properties.
2. **(Original)** A method according to claim 1, wherein each through-hole is dimensioned so as to maintain a liquid sample therein by means of surface tension.

3. **(Original)** A method according to claim 1, wherein each through-hole has a volume less than 100 nanoliters.
4. **(Original)** A method according to claim 1, wherein the plurality of addressable through-holes has a density in excess of 10^8 per square meter.
5. **(Previously presented)** A method according to claim 1, wherein the first sample in liquid form includes at least one of a target in solution and a target in suspension.
6. **(Previously presented)** A method according to claim 1, wherein at least one of a target in solution and a target in suspension includes a biological material.
7. **(Previously presented)** A method according to claim 1, wherein the step of loading a first sample includes drawing the sample from a planar surface by capillary action.
- 8-10. **(Canceled)**
11. **(Previously presented)** A method according to claim 1, further including maintaining a humid atmosphere for preventing evaporation of the first sample.
12. **(Previously presented)** A method according to claim 1, further including coating the liquid sample with a monolayer for preventing evaporation of the first sample.
13. **(Original)** A method according to claim 1, wherein the step of characterizing the reaction in the through-hole in terms of the specified properties includes optically analyzing the sample.
- 14-15. **(Canceled)**
16. **(Currently amended)** A method ~~for analyzing a plurality of samples~~ according to claim 1, the method further comprising:

~~d. loading the samples into a plurality of through holes disposed in a~~
~~platen in a two dimensional array characterized by an areal density of~~
~~at least 1.6 through holes per square millimeter;~~
ef. illuminating a set of more than one of the plurality of through-holes
with optical radiation; and
fg. separately analyzing the optical radiation emanating from each
through-hole of the set of more through-holes than one using an optical
arrangement including a detector array.

17. **(Previously presented)** A method in accordance with claim 16, wherein the step
of analyzing includes spectrally characterizing the optical radiation emanating from ~~the at~~
~~least one~~ each through-hole.

18-44. **(Canceled)**